

## **SUMMARY OF VDOT'S WORK ON I-81 FROM 1992 TO DECEMBER 2003**

### **PROJECT**

The Commonwealth Transportation Board authorized a Conceptual Study for I-81 in 1992. This study did not actually begin until 1996. The I-81 corridor from the Virginia- Tennessee State Line to the Virginia – West Virginia State Line was broken down into ten-study area. All of the conceptual studies were completed between February 1998 and May 1999. The Chief Engineer over a nine-day period in the fall of 1998 reviewed the Conceptual Studies in the field with each district. After the studies were completed, the Chief Engineer made a presentation to the Commonwealth Transportation Board.

A project to widen I-81 to 6 lanes from Virginia – Tennessee State Line to milepost 7 has been completed. Also a section of I-81 has been built to 6 lanes at the Christiansburg interchange. Several bridges along I-81 have been widened or lengthened to accommodate thru future widening of I-81.

The construction of several acceleration lanes and deceleration lanes has been completed throughout the I-81 corridor. There are ongoing projects to replace the bridges at Buffalo Creek and Maury River, which are being designed to handle future traffic. Truck climbing lanes are also being designed along the I-81 corridor. Design plans are now being completed for the constructive of a new interchange at milepost 14, which includes widening 2 miles of I-81 to 6 lanes.

A project is underway to study the separation of I-81 and I-77 through the Wytheville area.

There have been numerous safety improvement projects taking place over the pass three years throughout the I-81 corridor.

### **Roanoke Area**

0081-080-110, PE-102, RW-202, C-502

PPMS No. 16591

- Consultant: Site-Blauvelt Engineers
- VDOT Project Managers: Randall Phillips & Charlie Hepper
- Exit 137, Route 112 (Wildwood Road Interchange)
- Beginning Mile Post: 135.9 Ending Mile Post: 138.6
- Proposed interchange is the same configuration as the exiting interchange, a modified diamond with a loop and ramp in the southwest quadrant and no ramp in the northwest quadrant.
- Being designed for 4 northbound and 4 southbound mainline lanes, with a dual lane ramp from Route 112 to I-81 NB per the traffic analysis report based on 2025 traffic to meet a level service "C" (Urban).

December 15, 2003

- Shifted the mainline alignment at the end of the project to reduce impacts to exiting Dwellings.
- Anticipate possible noise and retaining walls at some locations. Have purchased 2 properties due to hardship on property owners (Advanced Acquisition).
- Plans were value engineered in October 2003.
- Preliminary Field Inspection was held in October 2003.
- Environmental document required: C. E. (Categorical Exclusion), for this project which will be included with PE-105, PE-106 and PE-107 projects for a single C. E.
- Anticipate having a public hearing in spring of 2005.

The plan design is at approximate 25% completion.

0081-080-110, PE-105, RW-205, C-505

PPMS No. 53094

- Consultant: Gannet Fleming, Inc.
- VDOT Project Managers: Randall Phillips & Charlie Hepper
- Exit 140, Route 311 Interchange
- Beginning Mile Post: 138.6 Ending Mile Post: 140.9
- Introduces a 2 lane CD (Collector Distributor) northbound and southbound from beginning of project and continuing onto the next project (PE-106).
- Being designed for 4 northbound and 3 southbound mainline lanes per the traffic analysis report based on 2025 traffic to meet a level service "C" (Urban).
- Proposed interchange is the same configuration as the exiting interchange, a modified diamond with a loop and ramp in the southwest quadrant and no ramp in the northwest quadrant, with plans showing right of way being acquired to add a loop for northbound Route 311 to southbound I-81 when traffic warrants exceed capacity of single left turning lane.
- Anticipate possible noise and retaining walls at some locations.
- Plans were value engineered in October 2003.
- Preliminary Field Inspection was held in October 2003.
- Environmental document required: C. E. (Categorical Exclusion), for this project, which will be included with PE-102, PE-106 and PE-107 projects for a single C. E.
- Anticipate having a public hearing in spring of 2005.

The plan design is at approximate 25% completion.

0081-080-110, PE-106, RW-206, C-506

PPMS No. 53095

- Consultant: Gannet Fleming, Inc.
- VDOT Project Managers: Randall Phillips & Charlie Hepper
- Exit 141, Route 419 Interchange
- Beginning Mile Post: 140.9 Ending Mile Post: 143.1
- A 2 lane CD (Collector Distributor) northbound and southbound continues from previous project (PE-105) and continues onto the next project (PE-107).

- Being designed for 4 northbound and 3 southbound mainline lanes per the traffic analysis report based on 2025 traffic to meet a level service “C” (Urban).
- Current interchange has a loop and ramp in the northeast and southwest quadrants. Proposed interchange will be a full cloverleaf. Design utilizes 2 three-lane bridges constructed several years ago on the mainline over Mason Creek.
- Anticipate possible noise and retaining walls at some locations.
- Plans were value engineered in October 2003.
- Preliminary Field Inspection was held in October 2003.
- Environmental document required: C. E. (Categorical Exclusion).
- Project is included with C. E. for PE-102, PE-105 and PE-107. Project has a 4F property being taken Brubaker Farm. Also part of the interchange and some connecting routes are in the designated limits of the Hanging Rock Battlefield. Also, the Hanging Rock Trail & Park is located within the project limits. Also the Freeman Cemetery
- Anticipate having a public hearing in spring of 2005.

The plan design is at approximate 25% completion.

0081-080-110, PE-107, RW-207, C-507

PPMS No. 53096

- Consultant: URS Corp.
- VDOT Project Managers: Randall Phillips & Charlie Hepper
- Exit 143, I-581 (I-73) Interchange
- Beginning Mile Post: 143.1 Ending Mile Post: 144.5
- A 2 lane CD (Collector Distributor) northbound and southbound continues from previous project with braids between the CD's and mainline before continuing onto I-581. Southern portion is being designed for 4 northbound and 3 southbound mainline lanes with the northern portion being designed for 5 northbound and 5 southbound mainline lanes per the traffic analysis report based on 2025 traffic to meet a level service “C” (Urban).
- I-581 is being designed to have 3 northbound and 3 southbound mainline lanes (same as existing) with a 2 lane CD (Collector Distributor) northbound and southbound, extending through the Route 117 (Peters Creek Road Interchange) and ending before the Hersburger Road Interchange.
- The existing I-581/Route 117 interchange is a full cloverleaf and is being replaced by a SPUI (Single Point Urban Interchange).
- Plans were value engineered in October 2003.
- Preliminary Field Inspection was held in October 2003.
- Environmental document required: C.E. (Categorical Exclusion), for this project, which will be included with PE-102, PE-105 and PE-106 projects for a single C. E., with several hundred feet of the northern portion being included with the E. A. (Environmental Assessment) for PE-104 and PE-101 projects for a single E. A.
- Roanoke Regional Airport is located on this project and has a runway perpendicular to I-581 between to Peters Creek Road Interchange and the Hersburger Road Interchange with runway lights located several feet off the existing shoulders.

- Anticipate having a public hearing in spring of 2005.

The plan design is at approximate 25% completion.

0081-080-110, PE-104, RW-204, C-504

PPMS No. 16593

- Consultant: Gannett Fleming, Inc.
- VDOT Project Managers: Randall Phillips & Charlie Hepper
- Exit 146, Route 115 (Plantation Road) Interchange
- Beginning Mile Post: 144.5 Ending Mile Post: 147.45 (Botetourt/Roanoke County Line)
- Being designed for 5 northbound and 5 southbound mainline lanes per the traffic analysis report based on 2025 traffic to meet a level service "C" (Urban).
- Proposed interchange is the same configuration as the existing interchange, a diamond, and is being shifted north approximately 900 feet to avoid Roanoke City's Water Treatment Plant.
- Route 115 will be relocated to allow for the shifted interchange.
- Anticipate possible noise and retaining walls at some locations.
- Plans were value engineered in October 2003.
- Preliminary Field Inspection was held in October 2003.
- Environmental document required: E. A. (Environmental Assessment) for this project, which will be included with PE-107 and PE-101 projects for a single E. A.
- Anticipate having a public hearing in spring of 2005.

The plan design is at approximate 25% completion.

0081-011-120, PE-101, RW-201, C-501

PPMS No. 53097

- Consultant: Hayes, Seay, Mattern & Mattern
- VDOT Project Managers: Randall Phillips & Charlie Hepper
- Exit 150, Route 220 Interchange
- Beginning Mile Post: 147.45 Ending Mile Post: 152.4
- Being designed for 5 northbound and 5 southbound mainline lanes, south of the interchange and 3 northbound and 3 southbound mainline lanes, north of the interchange per the traffic analysis report based on 2025 traffic to meet a level service "C" (Urban).
- Route 220 is being shifted slightly south and the grade changed to allow for Route 220 to bridge over I-81.
- The proposed interchange has loops and ramps in the northeast and southwest quadrants with a ramp only in the southeast quadrant.
- Route 11 will be relocated south of its current, at grade, intersection with Route 220 by approximately 3300 feet and will have a grade separated interchange with loops and ramps in the southeast and southwest quadrants with ramps only in the northeast and northwest quadrants.

- Plans were value engineered in October 2003.
- Preliminary Field Inspection was held in October 2003.
- Environmental document required: E. A. (Environmental Assessment) for this project, which will be included with PE-107 and PE-104 projects for a single E. A.
- This project has a potential historic site, the Thomas Kinzie House (apple farm).
- Also the Appalachian Trail crosses Route 220 at grade and runs parallel to the southbound I-81 lanes and crosses under I-81 at Route 779.
- Anticipate having a public hearing in spring of 2005.

The plan design is at approximate 25% completion.

### **Harrisonburg Area**

There are three I-81 widening projects within the City of Harrisonburg from MP 240.6 to MP 253. The project design has been developed up through PFI or approximately 20%. We were proposing one environmental document for all three projects a CE (Categorical Exclusion); however very little work has been done in preparing this document. The traffic analysis is about 80% complete. The work on these projects was suspended on August 6, 2002 due to funding problems.

### **Winchester Area**

There are three I-81 widening projects within the City of Winchester from MP 312 to MP 320. The project design has been developed up through PFI or approximately 20%. Initially, we were proposing one environmental document for all three projects an EA (Environmental Assessment); however in mid 2002 it was determined to request from FHWA to change the document to a CE (Categorical Exclusion) due to the change in the regulations. However, all work has suspended on these projects prior to this request FHWA. The traffic analysis is about 80% complete. The work on these projects was suspended on August 6, 2002 due to funding problems.

There are two stand alone projects in this area one bridge replacement project which will accommodate the future widening and one safety project to widen a existing ramp to two lanes which designs are about 40% complete.

### **TRAFFIC**

The traffic volumes that appear on Exhibit I and Exhibit 2 (attached) come from VDOT's traffic study that was completed in May 1999. These traffic volumes also appear on a traffic layout sheet for the total length of the corridor that was prepared by VDOT.

The feasibility studies for I-81 was completed December 1998. At that time, the entire corridor of I-81, from Tennessee to West Virginia was studied to determine the feasibility of widening the roadway based on the proposed traffic volumes for the year 2020.

After these studies were completed, the districts set priorities of the improvements. In the Salem District, a 16-mile section of I-81, including six interchanges in Roanoke and Botetourt Counties were selected and included in the 1999-2000 6-Year Improvement Program. In the Staunton District, four interchanges in Rockingham County and four in Frederick County were selected.

The two new traffic contracts that are now in place include: up-date future traffic projections to the year 2025 and analyze traffic conditions using CORSIM to determine requirements to achieve adequate levels of service; coordinate efforts with the design consultants to assist in their design and preparations of construction plans; analyze the effectiveness of the “Maintenance of Traffic Plans” developed for each project, provide traffic data necessary to perform technical studies for environmental documents, pavement design, and any design exceptions.

Following is the work accomplished to date by the two contracts:

**Anderson & Associates**  
**I-81 Traffic Development & Analysis**  
**Roanoke & Botetourt Counties**

Work is approximately 80% complete.

Data Collection task is complete.

Traffic Forecasting task is complete

Planning Analysis task is complete. Anderson has completed the analysis of Exits 137, 140, 141, 143, 146, and 150 and presented their findings in reports to VDOT and the design consultants.

Environmental Traffic task has not started. (put on hold)

Dissemination of Traffic Data to Design Consultants task is complete. Anderson has set up a secure web site to operate as a clearinghouse for traffic-related information for this project.

Public Involvement task is on hold pending a decision whether to delay because a NEPA document (2035 traffic)

Project Management task is continuing.

**HDR Engineering, Inc.**  
**I-81 Traffic Development & Analysis**  
**Rockingham & Frederick Counties**

Work was 70% complete, but put on hold since these projects were not included in the 2002 6-year plan.

Data Collection task is complete

Traffic Forecasting task is complete.

Planning Analysis task is put on hold

Environmental Traffic – Winchester and Harrisonburg is complete

Dissemination of Traffic Data to Design Consultants task was ongoing  
Public Involvement task is put on hold  
Project Management task is put on hold

## TRUCK LANES

I-81 is a major north-south trade connector in the United States. In fact, it is among the top eight truck routes in the U.S. and serves a vital purpose for the timely delivery of goods and supplies to retail businesses, manufacturing plants, educational institutions, hotels and restaurants and other tourist destinations.

Although I-81 originally was designed to carry a maximum of 15% truck traffic, there are sections today, which carry up to 40% truck traffic. Due to the interstate's rolling terrain and the volume of truck traffic, the right lane basically is full, leaving only the left lane for maneuvering.

Therefore, VDOT has been in the process of widening the interstate throughout Virginia. VDOT is aware that many motorists are anxious about the volume of trucks on I-81, and we want our information efforts to acknowledge this concern.

VDOT has studied a separate truck facility for I-81 at the preliminary development stage and the Chief Engineer, after reviewing the cost, considered it to be cost prohibitive. The estimate for a separate truck facility at that time was twice the cost of adding additional lanes to I-81 and improving the existing interchanges.

It has been suggested that trucks be restricted to certain lanes on I-81. Virginia law now restricts trucks in the left lane of a facility if the facility has three or more lanes. Lane restriction could be a potential solution, which has been studied by VDOT in detail to determine the benefits and negative impacts.

The University of Virginia has completed a study showing the impacts of restricting and separating truck lanes on the flow of traffic, specifically on I-81. A big consideration that was addressed in the study was the transition of truck traffic into and out of exclusive truck lanes and onto interchanges ramps.

Part of the research involved compiling information from all states about exclusive vehicle strategies. Here's what the study found:

- Only California has designated routes to be used exclusively by trucks;
- Oregon is the only state which designates a lane for the exclusive use of heavy vehicles (serve port terminals);
- New Jersey has mixed lanes for cars and trucks, and exclusive light vehicle lanes.

Traffic data was collected and studies completed and the studies indicated that adding additional lanes, not separate truck lanes, would meet the required LOS "C" for Urban and LOS "B" for Rural. See attachment for "Separate Truck Facility Analysis".

Also, VDOT did an accident study on I-81 and found that I-81 was in the normal range of accidents per miles traveled compared to other interstates.